

analysis and the clearness of its presentation. The excellent illustrations accompanying the paper add not a little to its effectiveness.—R. A. EMERSON.

Calcicoles.—MALCOLM WILSON⁶ has made a study of the varying composition of the woodlands of southeastern England, in connection with variations in the substratum. His conclusions are in harmony with those of most English ecologists, namely that the flora of the chalk and of other calcareous strata differs considerably from that overlying non-calcareous strata. However, the vegetation on the siliceous London clay differs considerably from that on the very similar "clay with flints," whereas the latter has a vegetation much like that of the chalk. Parallel species are found on the chalk and the clay with flints, the former being more xerophytic in structure; these results agree with those found long ago by KERNER. WILSON shows how other factors, such as depth of soil and amount of shade, are as likely to be limiting factors as is soil composition. These woodlands are largely coppiced every fourteen years or thereabouts, and WILSON pays large attention to the changes brought about at coppicing, through the admission of light, and to the gradual changes later on, as shade increasingly returns. While shade-tolerant species gradually get the upper hand in the years following coppicing, it is interesting to note that certain perennial species, usually regarded as light-requiring, may remain through the shade period; these plants are dwarf in habit and reproduce only vegetatively.

As is well known, most American ecologists place little emphasis on the division of plants into calcicoles, silicicoles, etc. BUTTERS,⁷ however, records from the Selkirk Mountains of British Columbia some observations that harmonize well with the calcicole theory proposed by UNGER in 1836. One of the lateral moraines of the Sir Sandford glacier is composed chiefly of fragments of limestone and dolomite, whereas the other lateral moraine is composed chiefly of fragments of granite and mica schist. The flora of these two moraines is strikingly different, only 34 of the entire 110 species occurring on both moraines; only 21 species occur somewhat equally in the two habitats. The flora of the limestone moraine is composed of species that are largely rare or local in the Selkirks, and it is to be noted also that limestones are similarly infrequent in these mountains. All other limiting factors seem excluded except that of difference in chemical composition of the substratum. There are 34 species on these moraines, which were found in eastern North America by FERNALD;⁸ 20 of these have exactly the same type of soil distribution in these widely separated regions, and in no case is there a reversal of soil preference.

⁶ WILSON, MALCOLM, Plant distribution in the woods of northeast Kent. I. *Ann. Botany* 25:857-902. *figs.* 4. *pls.* 3. 1911.

⁷ BUTTERS, F. K., Some peculiar cases of plant distribution in the Selkirk Mountains, British Columbia. *Minn. Bot. Studies* 3 and 4:313-331. *fig.* 1. 1914.

⁸ See *BOT. GAZ.* 45:138-139. 1908.

For fifty years, commencing with KERNER, many European botanists have called attention to the relatively xerophytic features of limestone plants. HOSSEUS⁹ shows that these same features hold for the tropics. His studies were made on a mountain in northern Siam, and he records the following xerophytic habits as characteristic: shortened, lignified, much-branched stems; reduced leaf surfaces; involute leaves; succulence, etc.—H. C. COWLES.

The chestnut disease.—ANDERSON and RANKIN¹⁰ have published a bulletin upon the chestnut disease which has attracted so much attention. The bulletin brings together the scattered data in reference to the disease and presents the known facts in a very convenient form. It seems that this "canker" was first discovered by MERKEL in 1904 on the American chestnut in the New York Zoological Park. The rapidity of spread has been phenomenal, and the authors state that "the completeness of destruction is without parallel in the annals of plant pathology." The latest published information states that the disease is now generally distributed among native chestnuts from New Hampshire and the Hudson region of northern New York to Virginia; and has spread westward into New York and Pennsylvania, but has not yet been found in Ohio or Indiana.

The name of the causal organism has been under considerable discussion, and the various views are presented. The authors adopt *Endothia parasitica* (Murr.) Anders. The morphology is discussed in detail, treating of stromata, pycnidia, pycnospores, perithecia, asci, ascospores, and mycelium. It is obvious that the American chestnut (*Castanea dentata*) is by far the most susceptible host, but no species of *Castanea* has been proved to be immune, although some of the oriental varieties show a certain amount of resistance. The conclusion at present is that this disease is not a serious menace to any forest tree except the chestnut. The problem of dissemination is discussed in detail, including such factors as man, insects, rain, birds, wind, and other minor agencies.

Naturally the subject of control is discussed with all available data, and the general conclusion is reached that "at present we know of nothing that will prevent the extermination of the American chestnut tree." The authors, however, "do not believe that the ingenuity of our scientists has been exhausted," a hopeful belief which we trust will be justified.—J. M. C.

Morphology of *Peperomia hispidula*.—JOHNSON¹¹ has made a detailed study of this species, having a very simple vegetative structure and a peculiar

⁹ HOSSEUS, C. C., Edaphische Wirkungen des Kalkes auf die Vegetation tropischer Karren und Karrenfelder. Bot. Jahrb. 45:661-669. 1911.

¹⁰ ANDERSON, P. J., and RANKIN, W. H., *Endothia* canker of chestnut. Cornell Univ. Agric. Exp. Station Bull. 347:533-618. pl. 37. figs. 101. 1914.

¹¹ JOHNSON, DUNCAN S., Studies of the development of the Piperaceae. II. The structure and seed-development of *Peperomia hispidula*. Amer. Jour. Bot. 1: 323-339, 357-397. pls. 36-38, 41-43. 1914.